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AMSAT NEWS SERVICE
ANS-024

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
https://mailman.amsat.org/postorius/lists/ans.amsat.org/

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ANS-024 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 024.01
 From AMSAT HQ WASHINGTON, DC
DATE January 24, 2021
To All RADIO AMATEURS
BID: $ANS-024

Update on the Status of RadFxSat-2 / Fox-1E

RadFxSat-2 was launched Sunday, January 17, on Virgin Orbit LauncherOne launch vehicle. Reports from the launch provider stated that telemetry confirmed that the deploy commands had been sent and that all of the doors opened successfully, resulting in payload orbits that were all within the ICD limits.

Nominally, we expected to see “First (digital) Veronica” from the RadFxSat-2 telemetry beacon commencing 54 minutes after our deployment from the launch vehicle. That did not occur as expected.

For each of our launches, we follow a number of steps documented in the “In Orbit Checklist” (IOC) spreadsheet. Confirmation of launch and deployment are the first steps and then, confirmation of beacon reception. All other steps follow that but there are steps in case of

anomaly, beginning with the detection of the beacon.

As always, from the moment we are deployed we look for signs of the beacon through the ears of amateur radio operators and other means, SatNOGS and webSDR to name a few. The antenna deployment and full start of the IHU to bring up the beacon can occur anywhere around the globe. AMSAT greatly appreciates the ongoing and reliable help we receive from you and it is by far the best satellite ground network even beyond that of many commercial players, for LEO orbits.

Command coverage is limited to the United States for various reasons including regulatory requirements, so the opportunity to exercise the steps of the IOC occurs a few times per day as the orbit passes over us.

With no sign of the beacon after a few orbits offering good footprints for reception, we proceeded with the contingency steps to verify the presence of or activate the beacon. This past week our Engineering and Operations Team members have been at work literally 20 hours per day exercising all of the contingencies outlined in the IOC steps. These steps have grown and matured with each launch of a Fox-1 program CubeSat and are tailored to the specific satellite. RadFxSat-2, while she may seem to be much the same as the others with the exception of the transponder vs. FM radio, does present a number of variations to be included in the IOC. As the results of those steps were exhausted with no beacon detected, we added meetings and increased emails including all of our engineers to discuss possible causes by any of the systems and to develop further steps.

>From those we drew new steps of command sequences that might overcome whatever anomaly existed and make the beacon heard. As the week drew on, we continued brainstorming and steps to activate other functions that would provide proof of life. We continue to do so today and for whatever time until we exhaust all possibilities that we are able to draw from the expertise and satellite experience of our Engineering Team and Operations Team drawing from the design of RadFxSat-2 and lessons learned in the Fox-1 program as well as any from missions prior to AMSAT’s first CubeSats.

AMSAT still needs your help as always, to help detect any sign of activity from RadFxSat-2. This includes ability to listen for local oscillators or transponder driver output in the case of a failed PA.

I personally ask that those of you who are and have been interested in the entire process of bringing a new amateur radio satellite to orbit and through end of life to continue to contribute your curiosity and enthusiasm in exploring from your own station, to pursue the possibilities of a successful RadFxSat-2 mission along with us. I have received reports and queries from some of you, and I greatly appreciate your contributions. You are in fact volunteers in the AMSAT Engineering Team through your contribution.

If you are interested, I ask that you do due diligence in your procedure if you think you have identified a signal by re-creating (if possible) and verifying to yourself that what you have is credible, as we do, before contacting us. That “standard” procedure is what adds value by making the information actionable rather than placing the onus of determining if it is even real upon us, because we are of course quite busy with that already. Please email your findings to foxtelem(a)amsat.us and allow us a day or two to acknowledge and/or reply.

While we tend to talk about our involvement with RadFxSat-2 above all, a real effect reaches outside our mutual desire for amateur radio

satellite fun. RadFxSat-2 is sponsored by Vanderbilt University as part of our long partnership going back to Fox-1A. RadFxSat-2's mission belongs to Vanderbilt University as part of their RadFX series of missions seeking to verify and explore radiation effects on COTS components. Their mission coincides well with AMSAT's desire to fly lower cost satellite missions using COTS components, in the unfriendly radiation environment of Earth orbit and beyond. Vanderbilt also sponsored the CSLI for RadFxSat (one) in our Fox-1B spacecraft back in 2012. Their proposal was selected by NASA, flown on the ELaNa XIV mission in November of 2017.

RadFxSat's mission was very successful in the information provided through the combined telemetry-gathering of all of those who pursue our missions through FoxTelem. Vanderbilt University published their results giving praise to AMSAT and our Fox-1 CubeSats. The experiments we host are built by students and Vanderbilt shares the experiences with the educational community in their area. That is a success for AMSAT as well in our goal to provide STEM and other educational contributions.

While the RadFxSat-2 mission is problematic at this time, we will pursue every possibility to make her work for the amateur community and for our partner. I certainly hope to continue our partnership with Vanderbilt, the mutual benefit is a wonderful and fun undertaking that adds to the value of our satellites.

[ANS thanks Jerry Buxton, N0JY, AMSAT Vice President - Engineering, for the above information]

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https://tinyurl.com/ANS-GOLF

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Changes to AMSAT-NA TLE Distribution for January 21, 2021

On January 19, 2021 at about 22:28 UTC Virgin Orbit LauncherOne Demo 2 placed 11 new satellites into orbit. AMSAT's RadFxSat-2 was among the 11 new satellites. The following is a summary of identified and not yet identified satellites from that launch as the date of this email.

So far, the following satellites have been identified and added to this week's AMSAT-NA TLE Distribution:
CAPE 3 - Cat ID 47309
MiTEE 1 - Cat ID 47314
ExoCube 2 - Cat ID 47319
Thanks to Nico Janssen (PA0DLO), Alan Biddle (WA4SCA), and SatNogs for the above IDs.

The object Cat ID 47316 is the Virgin Orbit LauncherOne rocket body and has not been added.

The following are unidentified satellites that have been added to this week's AMSAT-NA TLE Distribution:
OBJECT B - Cat ID 47310
OBJECT C - Cat ID 47311
OBJECT D - Cat ID 47312
OBJECT E - Cat ID 47313
OBJECT G - Cat ID 47315
OBJECT J - Cat ID 47317
OBJECT K - Cat ID 47318
OBJECT M - Cat ID 47320
Alan Biddle, WA4SCA, notes that the unidentified OBJECTS C, D, and M are in the center of the pack and are good candidates for being RadFxSat-2.

[ANS thanks Ray Hoad, WA5QGD, AMSAT Keplerian Elements Manager for the above information]
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ftp.amsat.org Service to be Terminated

User habits have evolved over the decades favoring file transfer via HTTP(S) and we are now seeing very little activity via the FTP protocol. AMSAT will eliminate the administrative burden and other costs of FTP operation and is proposing to terminate FTP services on 15 April 2021.

Please let us know at webmaster at amsat.org if this will cause any difficulty with any automated systems, especially with respect to dissemination of orbital elements. If you have such a system, please adjust them to get elements from the following locations:

https://www.amsat.org/tle/current/nasabare.txt
https://www.amsat.org/tle/current/nasa.all

Editor's Note: The gigabytes of historical files and information available at ftp.amsat.org will continue to be available. Details for accessing this archive will be made available at a later date.

[ANS thanks Joe Fitzgerald, KM1P, AMSAT IT Team Leader for the above information]

ARISS News

Maine Regional School Unit #21, Kennebunk, ME, multi-point telebridge via IK1SLD

The ISS callsign is presently scheduled to be OR4ISS
The downlink frequency is presently scheduled to be 145.800 MHz
The scheduled astronaut is Mike Hopkins KF5LJG

Contact was successful: Thu 2021-01-21 18:27:40 UTC 52 deg
Watch for live stream at https://youtu.be/LN70OpJFMgs

Newcastle High School, Newcastle, WY, multi-point telebridge via ON4ISS

The ISS callsign is presently scheduled to be Mike Hopkins KF5LJG
The downlink frequency is presently scheduled to be 145.800 MHz
The scheduled astronaut is Victor Glover KI5BKC

Contact is go for Option #5: Thu 2021-01-28 17:46:13 UTC 80 deg

The latest information on the operation mode can be found at https://www.ariss.org/current-status-of-iss-stations.html

The latest list of frequencies in use can be found at https://www.ariss.org/contact-the-iss.html

[ANS thanks Charlie Sufana, AJ9N, ARISS Operations, for the above information]

Hamfests, Conventions, Maker Faires, and Other Events

Want to see AMSAT in action or learn more about amateur radio in space?

AMSAT Ambassadors provide presentations, demonstrate communicating through amateur satellites, and host information tables at club meetings, hamfests, conventions, maker faires, and other events.

>From Clint Bradford, K6LCS

THANK YOU to The Villages Amateur Radio Club in Florida! We just had a great time (01/21/2021) discussing working amateur satellites. One of their members' sons is THE control op for AO-27 - don't you DARE delete those memories from your radios just yet!

Upcoming Zoom “How to Work Amateur Satellites With You HT” presentations:

February 8 - An ARES meeting in Los Angeles county
March 1 - Western Amateur Radio Association, Orange County, CA
TBD - Palm Springs Desert RATS
June 15 - Wellesley Amateur Radio Society, Eastern Massachusetts

Think a 90-minute, informative, and FUN presentation on working satellites would be appropriate for YOUR club? Let me know!

Clint Bradford K6LCS
http://www.work-sat.com

909-999-SATS (7287)

[ANS thanks Paul Overn, KE0PBR, and Clint Bradford, K6LCS, for the above information]

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+ The November/December 2020 issue of The AMSAT Journal is available for AMSAT members at https://launch.amsat.org/The_AMSAT_Journal/

+ Several new products are available on the AMSAT Zazzle store, including a set of coasters, a watch, a t-shirt featuring the AMSAT round logo, and more. Check out the new items! 25% of the purchase price goes towards Keeping Amateur Radio in Space. https://www.zazzle.com/amsat_gear

+ All issues of The AMSAT Journal dating back to 2014 are now available to AMSAT members on AMSAT's new membership portal. The 1969-2013 archive will be added at a later date. All editions of AMSAT's Symposium Proceedings are also available for members. If you're a current AMSAT member, get logged on today. If you are not yet a member, consider joining today at https://launch.amsat.org/

+ The 2020 edition of AMSAT’s Getting Started with Amateur Satellites is now available on the AMSAT store. A perennial favorite, Getting Started is updated every year with the latest amateur satellite information, and is the premier primer of satellite operation. The book is presented in DRM-free PDF format, in full color, and covers all aspects of making your first contacts on a ham radio satellite. The digital download is available for $15 at https://tinyurl.com/2020GettingStarted. The print edition is $30 plus shipping and is available at https://tinyurl.com/GS2020Print

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive addi-tional benefits. President's Club donations may be made at https://tinyurl.com/ANS-PresClub.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status.

Join AMSAT today at https://launch.amsat.org/

73 and remember to help Keep Amateur Radio in Space,

This week's ANS Editor,

Paul Stoetzer, N8HM
n8hm at amsat dot org